

Serial No. 10/358.012
Amendment dated August 21, 2006
Reply to Office Action dated: April 21, 2006

Remarks/Arguments

Claims 1-20 are pending in the application.

Specification

The Office Action dated April 21, 2006, states "The title of the invention is not descriptive. A new title is required that is clearly indicative of the invention to which the claims are directed. The following title is suggested: Method and Apparatus of indexing and updating a trace cache based on past branching behavior." The applicant has amended the title as suggested by the Examiner.

Claim Objections

Claims 13-15 are objected to due to informalities, requiring correction. Claim 13 has been amended to correct the informality and should now be in allowable form. Claims 14-15 depend from Claim 13 and should now be allowable as well.

Rejections Under 35 U.S.C. 112

Claims 4-5, 9-10, 14-15, and 19-20 are rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention. Examiner asserts claims 4-5, 9-10, 14-15, and 19-20 refer to a "determining" step which is not clearly defined by the parent claims as written. Claims

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4-5 and 9-10 have been amended, and applicants respectfully request the objection be withdrawn.

Applicant asserts that claims 14-15 and 19-20 are in proper form and requests further clarification from examiner regarding the reasons for the objection.

Examiner asserts claims 5, 10, 15, and 20, which recite the limitation "the alternate trace" in line 1, have insufficient antecedent basis. Applicants have amended the claims and respectfully request the objection be withdrawn.

Rejections Under 35 U.S.C. § 102(b)

Claims 1-2, 11-12, and 16-17 are rejected under 35 U.S.C. § 102 (b) as being anticipated by Rotenberg et al. ("Trace Cache: a Low Latency Approach to High Bandwidth Instruction Fetching," Eric Rotenberg, Steve Bennett, James E. Smith, IEEE, 1996; hereinafter referred to as "Rotenberg").

Independent claim 1 of the present application includes the following limitations:

reviewing a first branching behavior of a first previous set of branching instructions executed by a processor;

...

selecting a trace from among the multiple traces based on the branching behavior of the first previous set of branching instructions.

Examiner asserts these claim elements are taught by page 5, column 2, lines 16-18 of the Rotenberg reference which read as follows: "The predictor generates multiple branch predictions while the caches are accessed." On page 3, paragraph 10 of the Office Action, Examiner further asserts that Rotenberg "discloses comparing predictions made by a branch predictor with the

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branching behavior of a trace, thus reviewing the branch behavior.” What the cited portion of Rotenberg is generally describing, however, is merely determining whether there is a cache hit or cache miss. It does not teach “reviewing a first branching behavior of a first **previous set** of branching instructions. . . .,” because Rotenberg does not teach reviewing a first branching behavior, it likewise does not teach “selecting a trace from among the multiple traces based on the branching behavior of the first previous set of branching instructions.”

Applicants point Examiner to the bottom of the first column on page 5 where “branch masks” are described. This portion of Rotenberg makes it clear that traces are selected based on comparing the number of branch flags to the number of correct branch predictions. This comparison does not involve the behavior of any previous sets of branching instructions.

For at least all the reasons mentioned above, applicants assert independent claim 1 is allowable. Independent claims 6, 11, and 16 contain similar limitations to those on claim 1, and for at least all the same reasons, are also allowable. Dependent claims 2-5, 7-10, 12-15, and 17-20 are allowable as depending from allowable independent claims.

Rejections Under 35 U.S.C. § 103(a)

Claims 3, 13, and 18 are rejected under 35 U.S.C. 103(a) as being unpatentable over Rotenberg in view of Nair (U.S. Patent No. 6,304,962). Claims 4-5, 14-15, and 19-20 are rejected under 35 U.S.C. 103(a) as being unpatentable over Rotenberg in view of Nair in view of Patel. Claims 6-7 are rejected under 35 U.S.C. 103(a) as being unpatentable over Rotenberg in

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view of Tanenbaum (Andrew S. Tanenbaum, *Structured Computer Organization*, 1984, Pg. 10-11; herein referred to as "Tanenbaum"). Claim 8 is rejected under 35 U.S.C. 103(a) as being unpatentable over Rotenberg in view of Nair and in view of Tanenbaum. Claims 9-10 are rejected under 35 U.S.C. 103(a) as being unpatentable over Rotenberg in view of Nair and in view of Patel and in view of Tanenbaum.

At least due to the arguments above, dependent claims 3, 13, and 18 are allowable as depending from allowable independent claims. Accordingly, applicants respectfully request the rejections under 35 U.S.C. § 103(a) be withdrawn.

The Commissioner is hereby authorized to charge payment of any additional fees and/or patent application processing fees required under 37 C.F.R. '1.16 and '1.17 or credit any overpayment to Deposit Account No. 11-0600

Respectfully submitted,

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